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Pseudo-turbulence intensity in mono-dispersed bubbly liquids R. ZENIT, J. MARTINEZ-MERCADO, C.A. PALACIOS-MORALES, Inst. Inv. Materiales, Universidad Nacional Autonoma de Mexico — Experiments were performed to measure the mean and fluctuating velocities of both phases in a bubbly flow in a vertical column. Using water and water-glycerin mixtures, measurements were obtained for a range of Reynolds numbers from 10 to 500, corresponding to Weber numbers smaller than 2. A carefully designed bubble generator and the addition of a small amount of salt, produced a nearly mono-dispersed bubble size. Measurements of the bubble phase velocity were obtained using a dual impedance probe and through high speed digital video processing. A measurement of the fluctuating component of the liquid velocity was obtained using a *flying* hotfilm technique. It was found that, for all cases, the mean bubble velocity decreases as mean gas volume fraction increases. The flow agitation, characterized by the velocity variance, both in the liquid and the bubble phases, increases with bubble concentration. Surprisingly, the pseudo-turbulent intensities are found to increase as the Reynolds number decreases. Direct comparisons with recent theoretical and computational studies for the same range of conditions will be presented.

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